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ABSTRACT

Five- to seven-year-old second-born children from white, middle-class, intact families were the subjects for this study. Older siblings served as role model for each child, and the parent surrogate models were selected from a pool and trained to act as the child's real parent. The imitation task emphasized verbal, postural, and motor responses of two models playing a game. One point was assigned to the subject for each imitative response which could be attributed to the performance of either the parent surrogate or the sibling model. Overall, the assumed sibling effect in cross-sex dyads was more evident for second-born females than males. Second-borns in same-sex dyads appeared to imitate the same-sex parent more than their older sibling; the converse effect occurred for second-borns in cross-sex dyads. Indications were that in two-child families, children of the same sex compete for parental attention. In summary, imitation behavior of second-borns appears to be influenced by dyad composition and family configuration. This study raises the question of what types of family interaction patterns influence behavior of second-borns. (Author/PC)

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IMITATION BY SECOND-BORNS IN ADULT-SIBLING DYADS

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IMITATION BY SECOND-BORNS IN ADULT-SIBLING DYADS

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One potential determinant of socialization within a family is birth order of the child. For a period of time only adult models are available to the firstborn child, whereas the second-born child also has an older sibling as a model, and therefore a different childrearing environment. In the one child family the firstborn interacts solely with his parents in a single modeling situation. Through this interaction the child learns parental role behaviors which are used as cues to determine the appropriateness of his own behavior. Thus the firstborn orients himself toward adults and, according to Sutton-Smith, Roberts, and Rosenberg (1964), assumes the parent surrogate role. But an opportunity to overtly perform this adult role may not arise until the birth of a second child whose actions then elicit reciprocal adult-like responses from the firstborn. In this situation, the firstborn child gradually may emerge as a salient model for the younger sibling.

The two child family represents the multiple modeling situation since both the parents and the firstborn child provide available models for the second-born. The differential effectiveness of these two models will determine the second-born's imitation behavior. For example, Hicks (1965) found that both the adult and peer model conditions elicited aggressive responses in children. However, the peer model was more effective in the immediate test, while the modeling influence of the adult was more persistent, as evidenced in the aggression test six months later. The

inevitable conflicting cues of parent and sibling models also are absent from the firstborn's socialization experience. Wolf (1969) reported more rule conformity when young children viewed two conforming models than one or two deviant models.

Nurturance of the parents may determine their effectiveness as models if the parental response to the child is influenced by birth order. Sears, Maccoby and Levin (1957) noted that parents tended to interact more positively with firstborn than later-born children and to spend less time in nurturant interactions with each succeeding child. Parents have been observed to give more attention to the firstborn (Koch, 1954) and to talk and interact more extensively with this child (Rosen, 1961). But Schooler (1972) has suggested that the birth order differences associated with children born in the early 50's as reported by Sears et al. (1957), have disappeared since studies by Kohn (1969) and Schooler (1964) failed to replicate these findings with children born in the 1960's. Nevertheless, it seems reasonable to assume that parental interaction with a child is proportionately reduced as family size increases. This reduction may affect the parents' influence as socialization agents, thereby enhancing the saliency of the firstborn as a parent surrogate model.

The composition of the sibling dyad and the interactions within this dyad are additional factors in imitation which need to be considered in the two child family. The Sutton-Smith and Rosenberg (1965) data suggest that the firstborn reinforces his sex traits in the younger sibling. The conclusions to be drawn from much of the previous research (e.g., Brim, 1968; Rosenberg & Sutton-Smith, 1964; Sutton-Smith & Rosenberg, 1965) suggest that second-born children of cross-sex dyads are more initative

of their older sibling than second-borns from same-sex dyads. This imitation effect has been reported most frequently in second-born males with older sisters. An exception to this pattern is the research of Leventhal (1965; 1970) who found that college males (second-born) with sisters responded in a less feminine manner in a series of tasks and interest inventories than males with brothers. According to Leventhal (1970), this finding indicates a contrast rather than an imitation effect. That is, males exhibited characteristics opposite that of their older sister by displaying a greater interest in outdoor and technical activities, athletic skill, and attraction to all-male peer group than males with an older brother. But, Leventhal (1970) also found that second-born college males in a F1-M2 dyad had a more feminine response pattern on anxiety measures, consistent with an imitation effect, than males in a M1-M2 dyad. Thus, Leventhal (1970) concludes that sibling imitation in dyads occurs for some trait dimensions while a contrast effect appears for others.

The contrast in behavioral patterns between siblings of the same-sex and cross-sex dyads may have resulted from sibling rivalry in the same-sex dyad for parental attention. Leventhal (1970), using a Social Comparison Theory perspective, has suggested that the younger sibling may have chosen this behavioral pattern in response to unfavorable parental comparisons with an older sibling which occur more frequently in same-sex than cross-sex dyads. This explanation follows from Festinger's (1954) proposal that the younger sibling could reduce the frequency of unfavorable comparisons by portraying behavioral patterns that contradict those of his older sibling. Therefore, second-borns in same-sex dyads should imitate their older sibling less than second-borns in cross-sex dyads.

Although composition of the dyad seems to influence sibling imitation in second-borns, family configurations may be another factor. According to Sears, Maccoby and Levin (1957) interactions with later-born children seem to be mediated by the sex of the second-born with respect to the existing family configuration. For example, if the firstborn was a girl, parents were more positive with the birth of a boy than a girl. It would appear that the second-born of either the M1-F2 or F1-M2 dyad may receive more parental interaction than the second-born of a M1-M2 or F1-F2 dyad. Therefore, the second-born in a cross-sex dyad may imitate the parents more extensively than the second-born in a same-sex dyad. But, children also display some behavioral patterns of the nonrewarding model (e.g., Bandura, Ross, & Ross, 1963). This phenomenon may cancel out the effects of differential parental interaction on second-borns in cross-sex dyads. The empirical evidence regarding the relative strengths of these effects is not conclusive.

Previous research on birth order effects has been plagued with such methodological and conceptual problems as a failure to select subjects on the basis of family size, sex of sibling, and age spacing between children (Sampson, 1965). These factors were considered in the present investigation. The purpose of this study was to investigate imitation by second-born children of M1-M2, M1-F2, F1-M2, and F1-F2 dyads, after observing an adult male or female parent-surrogate and the older sibling in three verbal-motor tasks. This paradigm incorporated the advantage of both the artificial family (i.e., strangers enacting family roles) and the real family. Use of an artificial family permitted the random distribution of important familial variables such as dominance and the

incorporation of warmth without sacrificing basic family roles. Waxler and Mishler (1970) have argued for more extensive use of artificial families in child research so that better control can be exerted over variables of concern. (Stevenson, Keen, and Knights (1963) found that strangers were nearly as effective as parents with three-to-five-year-old children in a marble dropping task.)

Based on the previous discussion, the following predictions were made: (a) Second-borns from a same-sex dyad imitate the same-sex parent more than second-borns from a cross-sex dyad: (b) Second-borns from cross-sex dyads imitate their older sibling more than second-borns from same sex dyads; (c) Second-borns from cross-sex dyads imitate their older sibling more than a parent.

Method

Subjects

Five- to seven-year-old second-born children ($\bar{X}$ = 6:2) from white middle-class intact families were the subjects for this study. Subject choice was influenced by May's (1966) observation that five-year-olds exhibited greater imitation than seven-year-olds in a modeling situation. Social class determination was based on father's occupation rating as determined by the Warner, Meeker, and Eells' scale (Miller, 1964). Ratings ranged from 1 to 4, with a modal rating of 3. The second-borns were randomly selected from the entire kindergarten-, first-, and second-grade population (consisting of 1697 students) from a suburban school district.

The 48 second-borns selected for the study were equally divided into four dyads: M1-M2, M1-F2, F1-M2, and F1-F2. Twelve subjects in each

dyad observed their older sibling and an adult male or female parent-surrogate perform three verbal-motor tasks which yielded separate total scores for adult and peer model imitation. The resulting design was a 2 (sex of subject) X 2 (sex of sibling model) X 2 (sex of adult model) factorial.

Models

The sibling model for each child was his older sibling (firstborn) who ranged in age from seven to twelve years ($\bar{X}$ = 9:3). These firstborns were two to five years older than the second-born subjects ($\bar{X}$ = 3:1). A two-year difference minimum between siblings was imposed so that the firstborn had emerged as a distinct model for the second-born.

The parent surrogate model for each subject was selected from a pool of five adults consisting of two males and three females. Since the success of role playing in an artificial family context is dependent upon the sex and age of the model in the real family (Leik, 1964), both factors were considered in the selection of the adult models. In previous research artificial families have often consisted of graduate students, however Stowrie (1960) found that parental roles enacted by graduate students were not perceived as such by six- to eight-year-old children. Therefore the adult models in the present were selected to fit the estimated age range of the subjects' parents. The father surrogate models were a 31-year-old male and a 34-year-old father of three children. The mother surrogate models were a 35-year-old mother of three children, a 32-year-old and a 22-year-old who appeared to be much older.

All models participated in a training session where they were instructed to interact with the child as a parent who could be an acceptable

substitute for the subject's own parent. The traditional instrumental father and expressive mother roles were discussed and rehearsed. Each sibling model also provided the parent surrogate model with information about the subject's parents which was used to standardize the roles. The sibling models were instructed to view the adult model as the parent and to enact the appropriate role in the family when engaged in the three verbal motor tasks. Post-experimental interviews of the subjects indicated that the surrogates were perceived as actual parents, and interestingly, the characteristics of the surrogate models were quite similar to those of the subjects' parents. (One subject remarked, "That lady (i.e., the female model) was just like my mother.") The models also rehearsed the instructions for the imitation task.

Imitation Task

The imitation task was a modified version of a paradigm developed by Hetherington and Frankie (1967) which emphasized verbal, postural, and motor responses of two models playing a dart game, a golf putting game, and a ring toss game. Half of the objects for each game were painted blue and the other half were yellow so that color selection could be scored in the imitation task. Three subjects in each dyad observed the parent-surrogate model play the game with the blue set and the sibling model play the game with the yellow set, while the other three subjects in the dyad witnessed the models play the game with the opposite color. The model also emphasized the color selection. For example, if the parent-surrogate model was assigned the blue objects for a game, the model always said, "Blue is my lucky color" before using the blue objects in the game. Similarly, if the yellow game objects were assigned to the sibling model, the response was, "Yellow is my lucky color. The two

color sets were randomly distributed and were used an equal number of times by the models in each dyad to control for the effects of differential color appeal.

The model had five trials at each game and after each trial the model commented "good" or "darn" depending on his success in the game. Both the adult and sibling models had the same number of successes for each game. This feature controlled for the confounding effects of differential skill in the game. Since each model had the same number of successes and failures in each game, skill was not a factor.

Positional differences in playing the game also were varied for the two models. During the dart game the parent-surrogate model sat at an angle in the chair and threw the darts overhand while the sibling model sat straight in the chair and threw the darts in a sidearm style. In the golf putting game the parent surrogate model placed his hands far apart on the golf club, and spread his feet. The sibling model putted with his hands clasped together on the club and his feet together. For the ring toss game, the parent surrogate model assumed a squatting position while the sibling model stood during the ring tossing.

The scoring of the imitation tasks was adopted from Hetherington and Frankie (1967). One point was assigned to each imitative response which could be attributed to the performance of either the parent surrogate or the sibling model. The frequencies of the subject's imitative responses for each model for each of the games were summed and the resulting scores were labeled parent surrogate imitation and sibling imitation for the particular task. The sum of the subject's imitation scores for the three games for each model provided the dependent measure.

Procedure

The experiment was conducted in a mobile research trailer located at the school of the subject. The trailer contained an observer's room and a subject room which were divided by a partition containing a one-way mirror. The subject was conducted to the trailer by a male experimenter in his 20's. Enroute to the trailer the experimenter interacted in a warm, friendly manner with the child and told him/her, "We are going to my trailer where you can play some games. Your older brother/sister and a mother/father, just like your mother/father, already are in the trailer." After entering the trailer, the parent surrogate model was introduced to the subject as a parent of two children the same age and sex as the subject and his sibling. The experimenter then suggested that perhaps the subject would like to visit with the parent and learn more about the family. The parent surrogate model and subject were left alone for a ten-minute period to establish rapport and increase the likelihood that the subject would accept the adult model as a parent for the same situation. During this get-acquainted period the parent surrogate model discussed the interests of his/her children and also discussed the interests of the subject using information previously provided by the child's older sibling.

At the end of this period the experimenter returned to the room with the subject's older sibling and gave the setting for the imitation tasks. The subject was asked to pretend that he/she was at home with his/her father/mother and brother/sister and that they were going to teach the subject a new game. The models then announced the first game they would teach the child. (The order of the three games was randomly determined.) The order

in which each model played the game with the subject, using the assigned color, verbal, and postural cues, was counterbalanced. When the models had finished the game, consisting of two trials, the subject was told that it was his/her turn to play. The models then excused themselves and exited through a door to the observation room.

The subject was left alone for four minutes to play the game and his technique was observed through the one-way mirror by the experimenter who scored the subject's play for parent surrogate and sibling model-imitation. The models returned to the subject room at the end of the four-minute period and played the next game and then exited for four additional minutes. The same procedure was followed for the last game.

A second rater scored the responses of 11 subjects for each of the three games to provide a measure of interscorer reliability. Spearman-rho correlation coefficients were computed between scores for the two observers for parent surrogate and sibling model imitation. The correlations were .99 for both parent surrogate and sibling imitation.

At the conclusion of the imitation task, the experimenter interviewed the subject concerning his performance in the games and the role playing of the parent surrogate model. The subject was specifically asked if the adult model seemed like a parent, was similar to the subject's parent, etc. When the interview was finished, the subject was debriefed about the purpose of the experiment.

Results

A repeated measures analysis of variance was used to analyze the total imitation scores for parent surrogate imitation and sibling model imitation since each subject was scored for imitation of both models.

The repeated measures factor consisted of only two levels (i.e., the two scored) and the variances were homogeneous, therefore, heterogeneity of covariance was not a factor. The subject's scores for parent surrogate model and sibling model imitation comprised the within subjects' factor. The between subjects' factors were sex of subject, sex of sibling model, and sex of adult model.

Significant F ratios emerged for sex of sibling model (F = 5.00, df = 1/40, $p < .05$) and sex of adult model (F = 4.80, df = 1/40, $p < .05$). The subjects were more imitative of the male sibling ($\bar{X}$ = 100.33) than the female sibling model ($\bar{X}$ = 88.54), and the male parent surrogate ($\bar{X}$ = 100.04) than the female surrogate model ($\bar{X}$ = 88.83). Total imitation score also appeared as a significant factor (F = 15.52, df = 1/40, $p <$ .01). Second-borns scored higher on sibling model imitation ($\bar{X}$ = 116.31) than parent surrogate model imitation ($\bar{X}$ = 81.56). However, all three factors were involved in interactions.

Since second-borns in a cross sex dyad were presumed to show more imitation of the sibling than the parent surrogate model, simple effects analyses were performed on the Sex of Subject X Sex of Sibling Model X Total Imitation score interaction plotted in Figure 1, although this effect was nonsignificant (F = 1.64, df = 1/40, $p < .10$). The analyses

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Insert Figure 1 about here

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showed that dyad composition influenced imitation among second-borns. Both males (F = 4.60, df = 1/40, $p < .05$) and females (F = 8.73, df = 1/40, $p < .01$) in cross sex dyads were more imitative of their older sibling

than the parent surrogate model, although second-born females in the M1-F2 dyad also reproduced somewhat more sibling model than parent surrogate model imitation ($F = 3.35$, $df = 1/40$, $p < .10$). The imitation pattern of second-born females in the M1-F2 dyad showed the most extensive sibling model effect in their greater reproduction of sibling model imitation ($F = 7.57$, $df = 1/40$, $p < .01$) and parent surrogate model imitation ($F = 5.07$, $df = 1/40$, p .01) than second-born females in F1-F2 dyads.

When sibling or parent-surrogate imitation was considered alone, dyad composition apparently had little effect on second-born males. Males in th F1-M2 dyad were not more imitative of their older sibling than males in the M1-M2 dyad ($F = < 1$), and the males in the M1-M2 dyad were not more imitative of the parent surrogate model ($F < 1$).

The more extensive imitation of the sibling model by second-born females was evident also in the interaction between sex of subject, sex of parent surrogate model and total imitation score ($F = 8.63$, $df = 1/40$, $p < .01$) presented in Figure 2. Simple effects analyses indicated more sibling model than parent

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Insert Figure 2 about here

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surrogate model imitation when the surrogate model was a male ($F = 18.09$, $df = 1/40$, $p < .01$), but parent surrogate imitation was greater for the male than the female model ($F = 6.33$, $df = 1/40$, $p < .05$), indicating another contrast effect. Sex of the parent surrogate model did not significantly influence the type of model imitation by second-born males ($F < 1$).

As predicted, second-born males and females were more imitative of an older sibling than the parent-surrogate model, but the assumption that second-borns from cross sex dyads imitate the older sibling more than second-borns

from the same sex dyad was supported only for females. In order to evaluate the prediction that second-borns in a same sex dyad are more imitative of same sex parent than their older sibling, mean parent surrogate and sibling model imitation scores for male and female parent surrogates for the M1-M2, F1-M2, F1-F2, and M1-F2 dyads were pair-compared using a one-tailed t test. The results of these tests are presented in Table 1. Second-borns in same-sex dyads were somewhat more imitative of the same sex parent

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Insert Table 1 about here

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than the older sibling but this difference was not significant ($p > .05$). However, second-borns in same-sex dyads reproduced more of the same-sex parent surrogate model's game techniques than second-borns in cross sex dyads, who were more imitative of their older sibling.

Discussion

Overall the assumed sibling effect in cross-sex dyads was more evident for second-born females than males. The data for second-born females generally support an imitation rather than a contrast hypothesis. This suggests that females perceived their older brother as a positive model and thus an attractive model to be imitated, rather than a negative model whose behaviors are undesirable. The imitation effect is consistent with the earlier studies of Brim (1958) and Sutton-Smith and Rosenberg (1965) and supports Leventhal's (1970) contention that the imitation effect occurs for some traits and the contrast effect for others. In the present study the major trait was that of skill in a game. It would appear that girls in cross-sex dyads perceived their older sibling (i.e., brother) to be more competent in the games than girls in a same sex dyad whose older sibling

was a sister. Thus competency of the model may have been a factor. This perception of competency seems likely when one notes that second-born girls were more imitative than boys of an older brother. Since the girls were only five- to seven years of age, a contrast effect would not be expected since sex-role typing is not firmly established in girls this age. For a contrast effect to occur, the second-born must be aware of the negative aspects of the cross-sibling's behavior.

The lack of any sibling effects for males in cross-sex dyads as compared to same-sex dyads probably was a function of the task. As suggested previously, second-born males may have felt sufficiently confident that they could succeed in the game. However, boys with an older sister reproduced somewhat more sibling model imitation than boys with an older brother, indicating an imitation not a contrast effect, due perhaps to the age of the boys as suggested by Leventhal (1970).

Although parental socialization practices would seem to enhance greater parent imitation by second-borns in same-sex dyads, this assumption received only tenuous support in the present study. While second-borns in same-sex dyads appeared to imitate the same-sex parent more than their older sibling, the converse effect occurred for second-borns in cross-sex dyads. The greater parent surrogate imitation by second-borns in same-sex dyads may have resulted from sibling rivalry as proposed earlier. Second-borns in same-sex dyads may be striving for the parental attention and rewards which they see being directed to the older sibling. The data in general indicate that the older sibling is a less powerful model for second-borns in same-sex dyads as compared to cross-sex dyads. This may indicate that in two child families children of the same-sex are competing for parental attention. Sutton-Smith and Rosenberg (1970) suggest that parental attention

for the mother may be especially acute among the two males who try to please the mother through conforming. However there is no evidence of this effect for the second-born males in the M1-M2 dyad with respect to parent surrogate mother imitation or the second-born female and parent surrogate father imitation. In both dyads second-borns reproduced more sibling model imitation.

If the parent surrogate models in the study are considered to be reasonable substitutes for the subjects' actual parents, then it appears that parents are less influential socialization agents than older siblings with second-borns in cross-sex dyads. Further, the greater sibling model imitation by these second-borns, irrespective of sex of parent, suggests older siblings are quite powerful models. Several explanations for this cross-sex effect have been advanced. The decreased opportunities for parental interaction with succeeding children and the change in the family configuration are important factors. With decreased parent interaction, the older sibling, playing the parent surrogate role, emerges as a very attractive model. In addition, cross-sex siblings probably elicit a different role from each parent than same-sex siblings because of the different family configuration. Rosenberg and Sutton-Smith (1968) noted that same-sex dyads evoked stereotype roles from parents. The parental roles for cross-sex siblings undoubtedly are quite different. Communication patterns between siblings may also account for the differential effects of the older sib. Havens (1967) has reported some findings which suggest greater communication between cross-sex siblings.

However, the matter of external validity must be considered in interpreting the results of this study. That is, to what extent are the findings with parent surrogates characteristic of the real parents. Wexler and Wishler (1970) conclude, after reviewing the comparative studies of artificial and

real families, that given the same history, both family types should not differ in role or norm structure. In the present study, the parent surrogates extensively rehearsed their roles and used information on the child's real parents provided by the older sibling. Therefore, the parent surrogate's role enactment was quite close to that of the actual parent. This procedure seemed to negate much of the history effect. Secondly, the post-experimental interviews indicated that the subjects saw distinct similarities between the parent-surrogates and the actual parent. But, the present study was not designed to test differences between real and experimental families. Rather the purpose was to evaluate a theoretical conception or model of family dynamics, namely that second-borns in same- and cross-sex dyads respond differently to parents and their older sibling. For this purpose, according to Waxler and Hashler (1970) findings with parent surrogates are as reliable and valid as those with real parents.

In summary imitation behavior of second-borns from two child families appears to be influenced by dyad composition and family configuration. As yet unanswered in the present study is what types of family interaction patterns influence behavior of second-borns. This question needs to be taken up in future research.

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TABLE 1

Mean Parent Surrogate and Sibling Model Imitation For Same- and Cross-Sex Dyads[1]

Sex of Parent Surrogate Model	Sibling Dyad	Imitation Score: Parent Surrogate Model $\bar{X}$	SD	Sibling Model $\bar{X}$	SD
Male	M1-M2	112.0[a]	29.95	101.00	31.43
	M1-F2	89.17	39.22	187.66	106.18
	F1-M2	72.83[ab]	19.75	128.17[b]	40.73
	F1-F2	49.33[e]	16.13	132.17[e]	62.00
Female	F1-F2	67.00	32.97	50.17[c]	19.91
	F1-M2	93.33	24.66	115.33	42.15
	M1-F2	108.33	56.85	116.33[c]	46.26
	M1-M2	60.50[d]	15.31	99.67[d]	27.32

[1]Mean scores with a common subscript are significantly different from each other, $p < .05$, one-tailed t test.

Figure Captions

Figure 1. Interaction pattern of sex of subject, sex of sibling model, and total imitation score

Figure 2. Interaction pattern of sex of subject, sex of parent surrogate model, and total imitation score